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(54) HETEROGENEOUS LIQUID–PHASE CRYSTALLISATION OF DIAMOND

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No Image Available.

Abstract

The present invention relates to a principle for the heterogeneous liquid–phase crystallisation of diamond, wherein said crystallisation is carried out on the heterogeneous surface of a catalyst. This surface is characterised in that, during the high–temperature dehydrogenation process of heavy hydrocarbons containing bitumen–tar and asphaltenes, the catalyst performs a chemisorption of hydrogen under an atomic form. The catalyst surface submitted to the chemisorption exhibits a characteristic which is essential for the crystallisation of diamond in that only the growth of crystalline carbon–diamond is possible. This invention also relates to a method for implementing this principle with a yield in excess of 3,000 carats of diamond crystals having various fractions of between 100 and 1000 microns. During the experiments, the largest diamond crystal obtained had dimensions of 3.5 x 3.5 mm, while the production of diamond crystals with maximal dimensions was